

### A. Exon 1

BsaI	BseRI	SfI	EarI				
AGCTCAGAGACCCAAAGGCCCTCACAATCACACAGGCTCTCCCGCCACGGACTGCTGGCTGGGCAACACGGCTACAGGAGAGGGGGGGCTGGGCGGCCACGGCGCT							
TCGAGATCTCTGGTTCTCGCGGAGTGTAGTGTGCGAGGGGGCGGGTCTCGAGACGGACCCCTGTGGGAGATCTCTCCCGCCCGACCCCGGGTGGCGCA							
EaeI	BssHII EcoNI	BamHI	SdiI				
GATGGCCGAGGCCGCTGACGCCGAGTCTGGCTCTGGCCCTACGCGACGTTCTGCCAGAUTGCCCGGTTCTGTCTAACAGTGTCTGA							
CTAACCGCCCTCGCCGGACTCGCTCTGGGATATTCAGCGGGGAGCAGGGATGCGCTGCAAGACGGGTTCTGCGGCCACAGACGAAAGTGTCAAACT							
BsiHKAI	PshAI	EagI	Bpu10I	BamII	BpmI	Bsp8I	
ACGGAAACCGGTGCTCGACCCCTCGACCCCGTCTGGCGCGCTTGAAGCTGAGCCCTTGTGAACTCTGCTGCTCCCGCCCTCAGCGTCGCCCTCGGCCCTCGTCCAGCCCG							
TGCCCTGGGCCAGAGCTGGGAAGGCTGGGGCAAGCCCGGAAACTCTGGGACTCGGAAACAGTGTGAGCAGCGAGGCGGGAGGTGCGAGCGGAGGCCGGAGCGAGTGGCGAG							
DrdI	Bsp8I	BsmBI			BpmI		Ncol
ATCATGACCAACGGCGTCTCCCTCGAACAGTGCACGAAACTACACCAACGGGACTCGAGGCTGCCATCACCGGCCAGATCACTCTGGATGTATGCTCTACGCTATCTGTC							
TAGTACTGGTGGCCAGAGGGAGCTTCACTGGGCTTGTGTTGCTGACCTCCGACGCTGAGTGGCTGACCTCAACATACCGAGATCAGATGACAGG							
► Met Thr Thr Ala Ser Pro Ser Glu Val Arg Glu Asp Thr His Glu Asp Ser Glu Ala Ala Leu Asn Arg Glu Ile Asn Leu Glu Leu Tyr Ala Ser Tyr Val Tyr Leu Ser							
Drall	StyI	Adel					
ATGGTGAGTGCGGCCCTGGCTTTGCCGGGGCGAAARGAGGGTGGGCTGGCCCTGGGCCACTGGTGAAGCTGGCGAGGGTGGGTTGGGGCTGGGCTGGCGG							
TACCAACTCACGCCGAGCCGGAAACGCCCGCCCTTCTCCACGCCGGACCGGAGGGAAACCCGGTGAACCAACTCGACCCGCTCCACCCAAACCCCGACCGACGCC							
► Met							

### B. Exon 2

GCATCTGCCTGCTGTCGGGATCAATAACAACTACCCCTTCCACTTTCAGTCTGTTATTTGACGGGGATGATGTCGGCCCTGAACTTGCAAAATACTTTCTCCATCAA  
 CGTAGACGUACGACACCCCTAATTGTTATGGGAAAGGTGAAAGTCAGAARACATRAAACTGGCCCTACTACACGGGACTCTTGAACGTTTATGAAAGGGTAGTTAGA  
 ▶ Ser CysTyr PheAspArgAspAspValAlaLeuLysAsnPheAlaLysTyr PheLeuHisGlnSer

### C. Exons 3 and 4

PsiI AIII 8mer BsrBI BsmI BsrDI ApaI BsgI  
 CTGCAGATGAAATTGACATGTTCTTGATTCTGAAACCTGACCGTGTGACTGGGAGCGGGCTGAATGAGCTGTCAGTCGACTGGAAAAGAGTGTGAATCAGTC  
 GACGTCTACTTAACTGACAAAGAAACTAAGTCTTGGACTGGCACTACTGACCTCTCGCGGCAACTTACGTACTCCACAGCTGACGTGAACTTTCTCACACTTACTGAGT  
 ▶ LysPr oAspAr gAspAspTr pGluSer GlyLeuAsnAlaMetAr gOysAlaLeuHisLeuGlyLysSer ValAsnGlnSer  
 PmlI DralI  
 CTACTGGAACTTCACAAAATCGCTACTGACAAGAAATGATCCCCACGTGAGTATCGAAAGACCGGGGTGAGGGAGATGATTTGCCCCACAGGGCTGGAGAGCTGACCACTAAC  
 GATGACCTTGAGAATGTTGACCGATGACTGTTCTACTAGGGGTGCACTCTAGTCTTGTGCCCCACTCACCTACTAAACGGTGTCCCGAACCCCTCTGCACTGGTCAATTG  
 ▶ LeuLeuGluLeuHisLeuAlaThrAspLysAsnAspProHis  
 BsmBI BspMI XcmI BsmI BstEII PmlI  
 CTGTCCCCATGTTCTTCTTCTAGTTATGACTCTATTGAGACGCCATTACCTGAAATGAGCAGGTGAAATCCATTAAAGAACCTGGTGCACCAACTTACGCCAAGATGG  
 GACAGGGTACAGAGAAAGGTCAATACACTGAAAGTAACTCTGGTAACTACTGCTTACTAGGTAAATTCTGGCACTTGTGACCTGGTGAATGCGTTCTAC  
 ▶ LeuOysAspPheIleIleIleThrHisThrLeuAsnGluGluGluValLysSerIleLysGluLeuGlyAspHisValThrAsnLeuArGlyAspMetG  
 BanII MsI BspI AallI StyI BstAF  
 GAGCCCCCTGAATCTGGCATGGCAGAATATCTCTTGACAAAGCACCCCTGGGACACGGTGTGAGAGCTAAAGCTGACGCTCCCAAGGCCATGTGACTTTACTGGCTCACTGAGG  
 CTCGGGGACTTAGACCGTACCCCTTATAGAAAATCTGCTGTGGACCCCTGTGCACTACTCTGATTGCACTGGGGTCCCGGTACACTGAAAATGACCGAGTACTCC  
 ▶ IleAlaProGluSerGlyMetAlaGluTyrLeuPheAspLysHisThrLeuGlyHisGlyAspGluSer...  
 Ppu10I Xapl  
 NsiI Apol  
 EcoT22I KpnI  
 SphI AcsI  
 ▶ ApaI BanII  
 CAGTGCATGCTGGCAGCTTATCTTCTATAAGTGCACCAAAACATCTGCTTAAAGTTCTTATTTGACCATTTCTCAAATAAGAATTGGTACCCAGCT  
 GTCACTGCTACAGTCCGACCGAAATAGAAAAGATATCACCGTGGTTTGAGACGATTTCAAGAAAATTAACATGGTAAAGAAGTTTCTTAAACCATGGTCA  
 ▶ SspI  
 CTTGTTGTGATTGAGGATGAGCGCACCAGCTCCCTGGCTGCGCTATATAACCAACTGCAACGCCGAAAGAATATTAACTGCTGTTGGGAAAGAATAGTGAAGA  
 GAACAACTAATCTCTGGCTGGCGAAGGGAAACGCGACGCCGATATATGGTGTGACGTGCGGACTTCTTATATAAATATTGAGACATCAACCCUTTCTCATCATTCT  
 DsdI StyI  
 DrdI BspMI NcoI XbaI SmlI  
 CAGGGTGTGTCAGACAGGAACTAAGCAGTCCTGGTCTGAGTTCACCTGGCAGACTGCCATGGAAAACATATTCTGAGTGT  
 GTCCACACAGTCCTGATTCGTCAGGACCAAGACTCAATGGACGCTGTCAGGCGTACCCCTGTATGARACTCACAG

## FIGURE 1

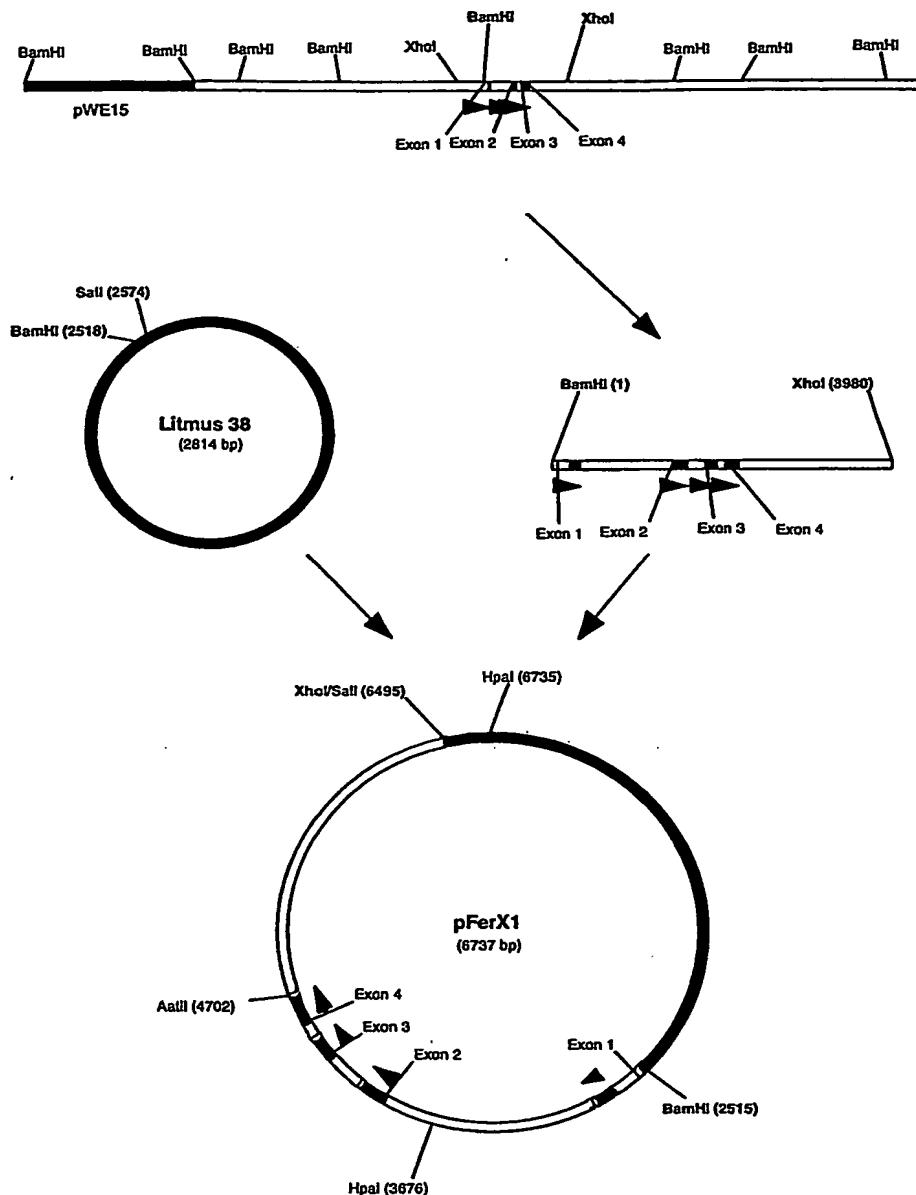


FIGURE 2

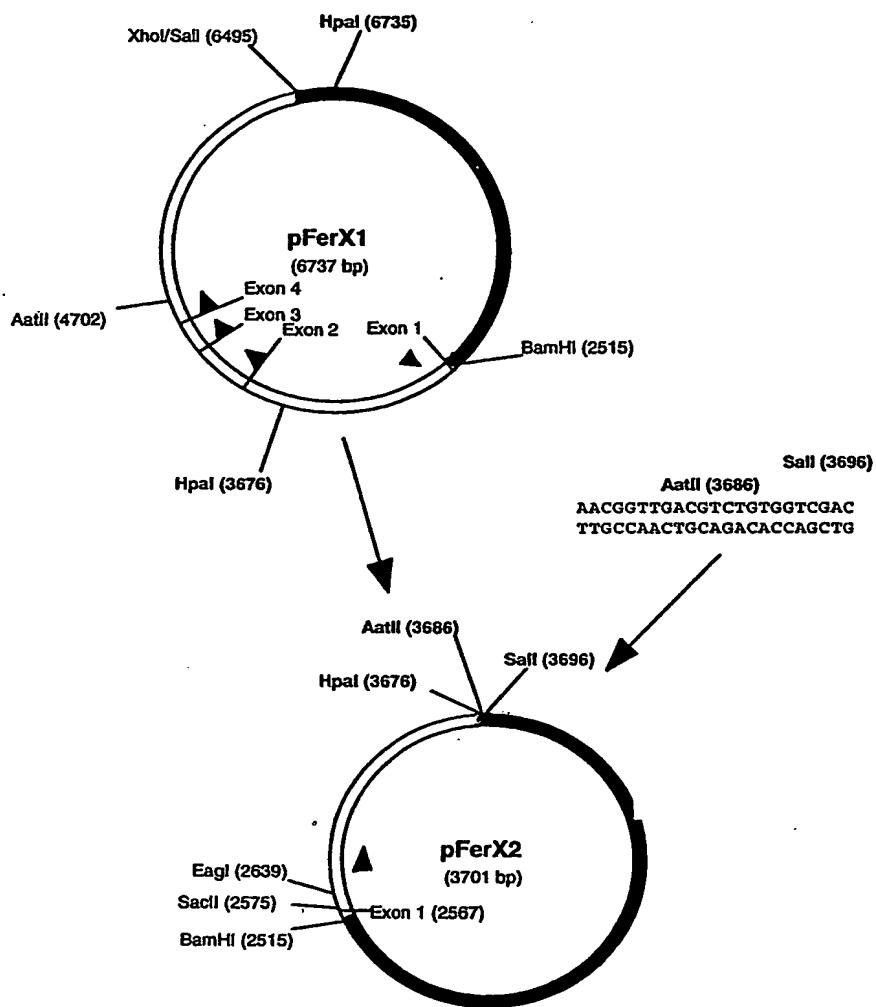


FIGURE 3

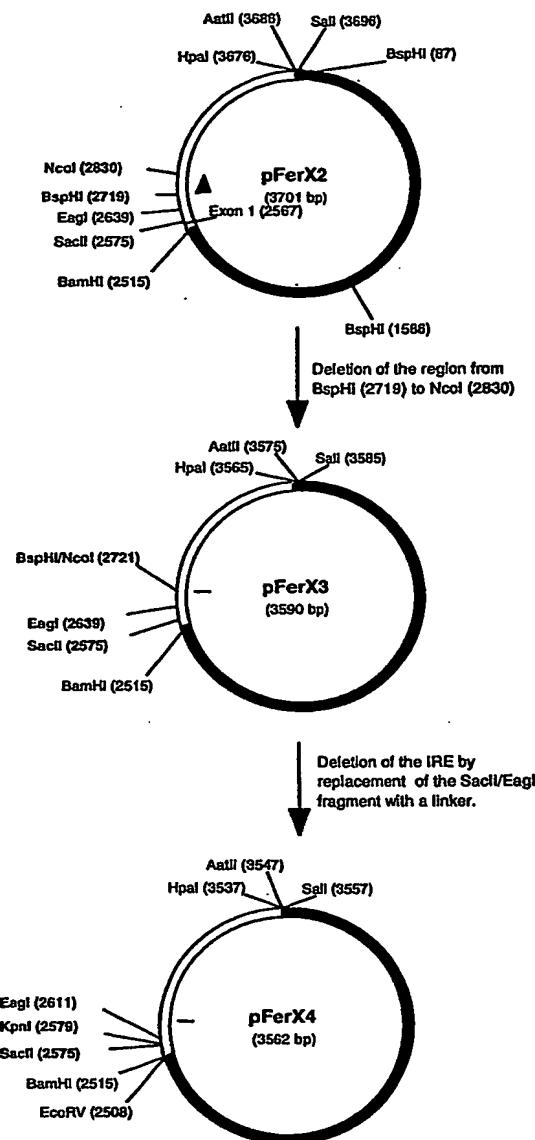


FIGURE 4

A.

Fer1

ATC TGT CCA TG GTGAGTGC~~GG~~CTGGCCTTGGCGGGCGAAAGAGGGTGC~~GG~~CTGGCCTCCCTGGCCACTTGGTGAGCTGGCGGAGG  
 →  
 GTGGGGTTGGGGCGTGGCCTGCTGGGGCTTCCCCTCAGGCCCTCTGGAAAATGGAGTTGTGGGGTTCTTCCAAAGGCAGGCAGCC  
 CTGGCCTGGCAAGTCTGACACCTAGGCCCTTGCTGCATAGACCGACGTATAACACCCGTGTTTGAGGCCTTAGGGCTGTACAAC  
 TGTGAGCCCTCCAATCACCCCTGAGTGTAGGTCATTTCTGCACTCTCGCCTCCGGTCACATGGCCTGCAAGCTCTGTTGGGTA  
 CATCCAGCTCCAGTCTCTGACTATGGGGGCTGCTGGTGTGGAAATGGCAGCCCTGGGCTTACAAAGAGGCTTATCTCTGTG  
 AACCTTAACTCTAACCACCTCTGAAAGCAGCCCTACATCTGCTTACAGAGGCTCAGTTGAGTGTAACTTATCGCTAGGAATCTCCCTT  
 CTGAAATCACCCCTGACCTTGCAAGGCATAGAGTACTGTACCTTAAATTGATGGCAGTGTGCTTACAAAGAGGTAGTAGGTT  
 AACATACTGTTGGAAAAAAAGCCACGGTGGGAAAAAAACATTATCGTGGAAATACAATACACTGAGTGCCTAAACTGAAAATCAAGCTCTCC  
 HpaI  
 CAATGTATTGTGCTAAATACAATGCCCTCAGTTAAACAGGTAATCAGCAGTGGCTGTAGCTGAAACCTTGAGACCTTGTTAACCA  
 TTTTTTTTAAATACATGATTGTTGAAGGAGAGAATTGACCTCCCAATGTAGGGCAGTTAGCACCCTCTCAGACAAATAGATATGGCCTTG  
 GCTTAAAGTTTTCTGCACTAATGTGGAGCCATAGAACCTTGATAAGCCAAGTTTCTCCATCCTTAAAGGCCAAG

Exon 2

TAGGGTACACAAACGCCCTTACCCATTGCATGCCCTGCTGGGATCAATAACAAATACCCCTTCCACTTCAAG TCT TGT TAT TTT  
 ← Ser Cys Tyr Phe

GAC CGG GAT GAT GTG GCC CTG AAG AAC TAC TTT GCC AAA TAC CTC CAT CAA TCT CAT GAA GAG AGG GAA CAT  
 ▶ Asp Arg Asp Asp Val Ala Leu Lys Asn Phe Ala Lys Tyr Phe Leu His Gin Ser His Glu Glu Arg Glu His  
 GCT GAG AAA CTG ATG AAG CTG CGC AAC CAG CGA GGT GGA ATC ATC TTC CTG CAG GAT ATC AAG GAAAGTAGACTA  
 ▶ Ala Glu Lys Leu Met Lys Leu Gin Asn Gin Arg Gly Gly Arg Ile Phe Leu Gin Asp Ile Lys  
 TGGGACTGCGTTAAATGAGCAGTNN  
 NNN  
 Exon 3

TTCTTTGATTCAG AAA CCT GAC CGT GAT GAC TGG GAG AGC GGG CTG AAT GCA ATG AGG TGT GCA CTG CAC TTG  
 ▶ Lys Pro Asp Arg Asp Asp Trp Glu Ser Gly Leu Asn Ala Met Arg Cys Ala Leu His Leu  
 GAA AAG AGT GTG AAT CAG TCA CTA CTG GAA CTT CAC AAA CTG GCT ACT GAC AAG AAT GAT CCC CAC GTGAGTAT  
 ▶ Glu Lys Ser Val Asn Gin Ser Leu Leu Glu Leu Lys Leu Ala Thr Asp Lys Asn Asp Pro His

Exon 4

CAGAACACGGGGTGAAGTGGAGATGATTGCCACAGGGCTGGGAGAGCTGACCAGTACCCCTGTCCTCTTCTAG TTA TGT GAC  
 ▶ Leu Cys Asp  
 TTC ATT GAG ACG CAT TAC GAG CAG GTG AAA TCC ATT AAA GAA CTG GGT GAC CAC GTG ACC AAC TTA  
 ▶ Phe Ile Glu Thr His Tyr Leu Asn Glu Gin Val Lys Ser Ile Lys Glu Leu Gly Asp His Val Thr Asn Leu  
 CGC AAG ATG GGA GCC CCT GAA TCT GGC ATG GCA GAA TAT CTC TTT GAC AAG CAC ACC CTG GGA CAC GGT GAT  
 ▶ Arg Lys Met Glu Ala Pro Glu Ser Gly Met Ala Glu Tyr Leu Phe Asp Lys His Thr Leu Gly His Glu Asp  
 AaII (5419)  
 GAG AGC TAA GCTGACGCCAACGGCATGTGACTTTACTGGTCACTGAGGCAAGTGCATGTCAGGCTGCCCTATCTTCTATAAGTT  
 ▶ Glu Ser ... →

Fer4

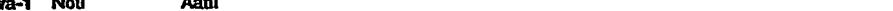
GCACCAAAACATCTGCTTAAAGTTCTTAAATTGTACCAATTCTCAATAAAGAATTGGTACCCAGCTCTGGTGTGATTG

B.

Fer1

ATC TGT CCA TG GTGAGTGC~~GG~~CTGGCCTTGGCCTTGGCGGGCGAAAGAGGGTGC~~GG~~CTGGCCTCCCTGGCCACTTGGTGAGCTGGCGGAGGG  
 →  
 TGGGGTTGGGGCGTGGCCTGCTGGGGCTTCCCCTCAGGCCCTCTGGAAAATGGAGTTGTGGGGTTCTTCCAAAGGCAGGCAGCC  
 GCGCTGGCAAGTCTGAGCACCTAGCCTTGTGGCTCTGCATAGACCGAGGACGTATAACACCCGTGTTGAGGCCTTAGGGCTGTACAACCTG  
 CAGCCCTCCAATCACCCCTGAGTGTAGGTCATTTCTGCACTCTGCTCCCTCGGTACATGGCTGTGCAAGGCTCTGTTGGGTGACATC  
 CAGCTCCAGTCTCTGACTATGGGGCTGCTGGTGTGGAAATGGCAGGCCCTGGGCTTGGTACAAAGAGGCTTATCTCTGTGAACTT  
 ACTCTAACCACTTCTGAAAGCAGGCCCTACATCTGCTTACAGAGGCTCAGTGCATTGAAACTTACGCTAGGAATCTCCCTCTGTA  
 TCACCCCTGACCTTGCAAGGCATCTAGAGTACTGTACCTTAAATTGATGGCAGTGTGCTTACTACAGAAGTAGTGGTAACATAC  
 TTGGTGGAAAAGGCCACGGTGGGAAAAAAACATTATCGTGGAAATACAATACACTGAGTGCCTAAACTGAAATCAAGCTCTCCAAATGAT  
 HpaI  
 TTGTGCTAAATACAATGCCCTCAGTTCTAACCGAGTAATCAGCAGTGGCTGTAGCTGAAACCTTGAGACCTTGTTAACCTTTTA  
 TTTAACATGATTGTTGAAGGAGAGAATTGACCTCCCAATGTAGGGCAGTTAGCACCCTCTCAGACAAATAGATATGGCCTTGCTTAAAGTT  
 TTTCTGCACTAATGTGGAGCCATAGAACCCCTGATAAGCCAAGTCCAAAGTTGTTCCATCCTTACTTTAAAGGCCAAGTAGGGTGACAA  
 Swa-2 NotI FN2  
 ACAGCCTTACCAATTGCATGCCCTGCTGGGATCAATAACAAATACCCCTTCCACTTCAGCTGCTAGCGGCCGCTGACGT

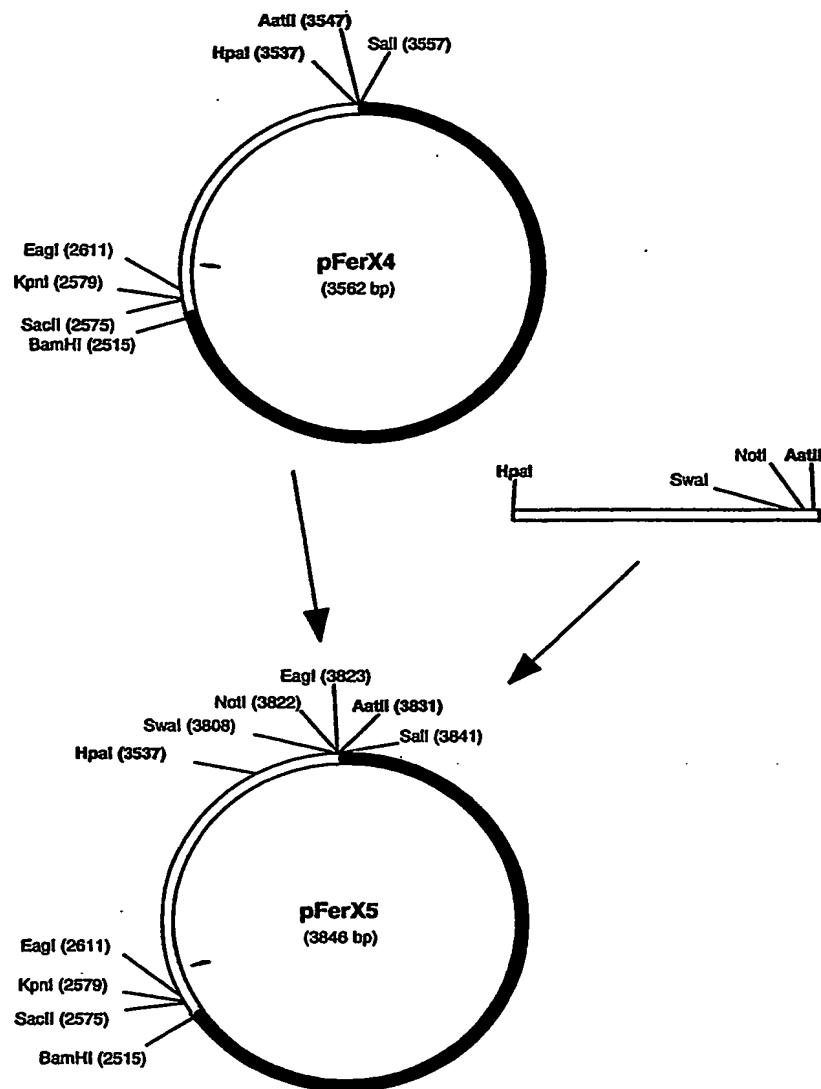
C.

**FN1**      **Swa-1**      **NolI**      **AatII**  
ACTTTCAGCTGCTAGCGGCCGCGCTGACGTCCCCAAGGCCATGTGACTTTACTGGTCACTGAGGCAGTGATGCATGTCAGGCTGCCTTTATCTT  

  
**Fer4**  
TCTATAAGTTGACCAAAACATCTGCTAAAGTTCTTAATTGTACCATTTCTCAAAATAAGAATTGGTACCCAGCTCTGTGTGATTC

D.

**Fer1**  
ATC TGT CCA TG GTGAGTGCGGCCCTGGCTTGGGGGGCGGAAAGAGGGTGCCTGGCTCCCTGGCCACTTGGTGA GCTGGCGAGGG  
  
TGGGGTGGGGTGGCCTGCGGGCTTCCCGCTTCCAGGCCCTCTGGAAATGGAGTTGCTGGGGTCTTCAAAGGCAGGCAGCCCT  
GCCCTGGCAAGTCTGAGCACCTAGCCCTTGTGGCTCTGCATAGACCAGGCACGTATAACACCCGTGTTGAAGCCTTAGGGCTGTACACTG  
CAGCTCTCCATCACCCCTGCACTTAGGTGCACTTCTGCACTCTCGTCCCCTCGGTACATGGCCTGCAGGCTCTCTGTTGGTGTACATC  
CAGCTCCAGTCTCTGTACTATGGCGGTCTGCTGGCATGGTGTGGATGGCAGCCCTGGGCTTGGTACAAAGAGGCTTATCTCTGTA  
ACTCTAACCACTCTGTAGACGGCCCTCTACATCTGCACTCACAGAGCCTACTGGCAATGGAAATATCGCTGAGGAATCTCCCTCTGTAA  
TCACCTGAGCTGCCCAAGGACATAGAGTACTGTAGCTTTAATTATTTGACCACTGGCTGCTTACTAACAGAAGTAGTAGGTAACATAC  
TTGGGAAAGCCACGGTTGGGAAACCCATTCTGTGAAATACAACTAGAGTGCCTAAACTGAAATCAAAGCTCTCCAAATGTAT  
  
**Hpal**  
TTGTGCTAAATACAATGCCCTCAGTTCTAACCGAGTAATCAGCAGTTGGCTGCTAGCTGAAACCTTGACATTCCTGGCTTAACTATTTTT  
TTAACATGATTGGTGAAGGAGAATGACCTCCCAATGTAGGGCACTTAGCACCCTCTCAGACARATAGATATGGCCTGGCTTAAAGTT  
TTTCTGCACTAATGTGGACCATAGAACCCCTGTATAAGGCCAAGTCCAGTTCTTCCATCTTACTTTAACAGGCAAGTAGGGTACAA  
  
**Swa-1** **Swa-1** **Swa-2** **NotI** **Asil**  
ACAGCCTTACCACTTGCACTGCTTGTGGGATCAATAACAAATACCCCTTCAATTAAATCTGCTAGCGCCGCTGACGTCCCCAAGG  
  
**Fer4**  
CATGTGACTTTACTGGTCACTGAGGCAGTGCATGCATGCTCAGGCTCTTATCTTCTATAAGTTGCACCAAAACATCTGCTTAAAGTCTTAA  
  
ATTGTACCATTCCTCAAAATAGAATTGGTACCCAGCTTGTGTGATTG

## FIGURE 5 B

**FIGURE 6**

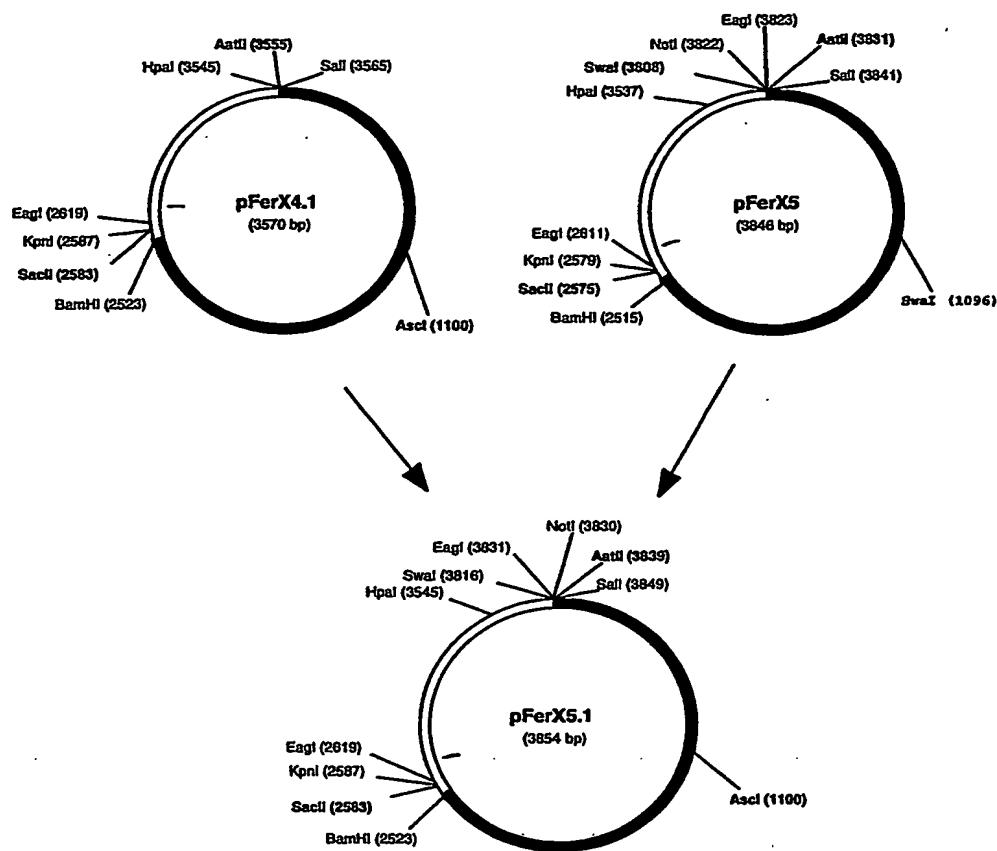
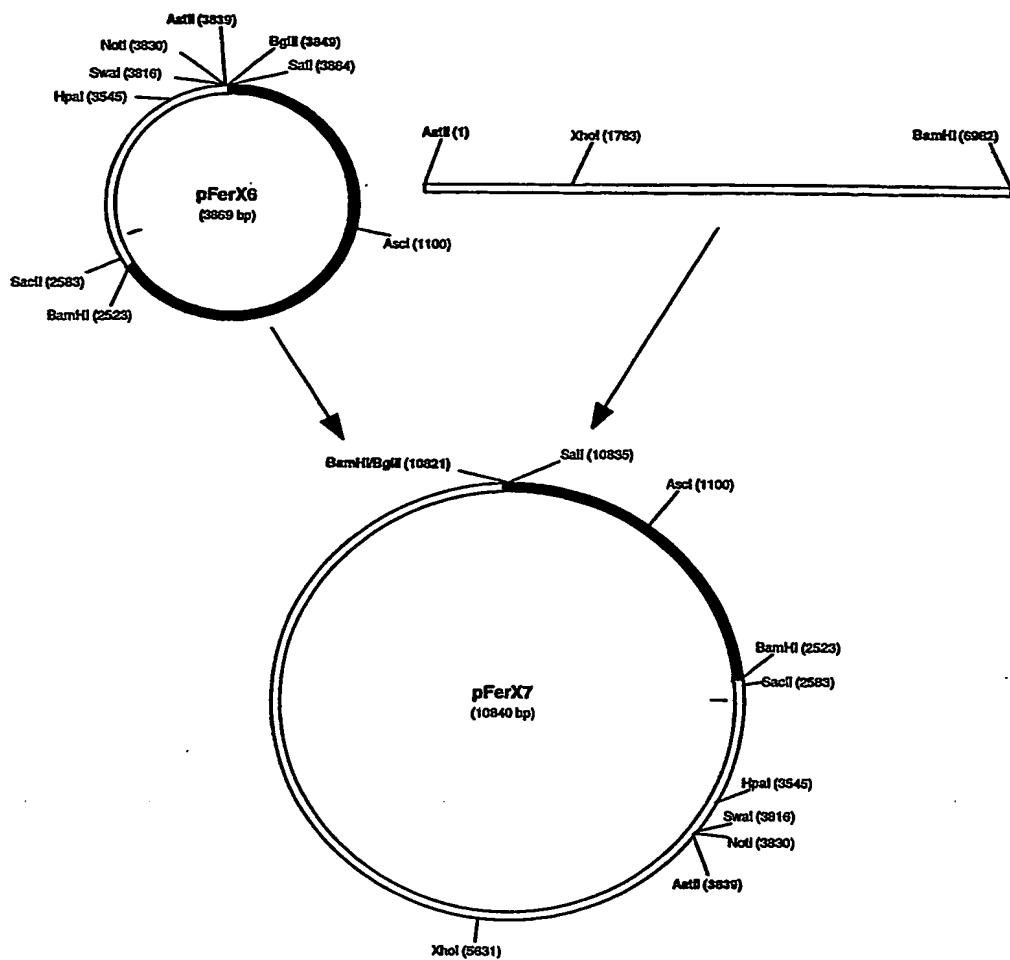


FIGURE 7

**FIGURE 8**

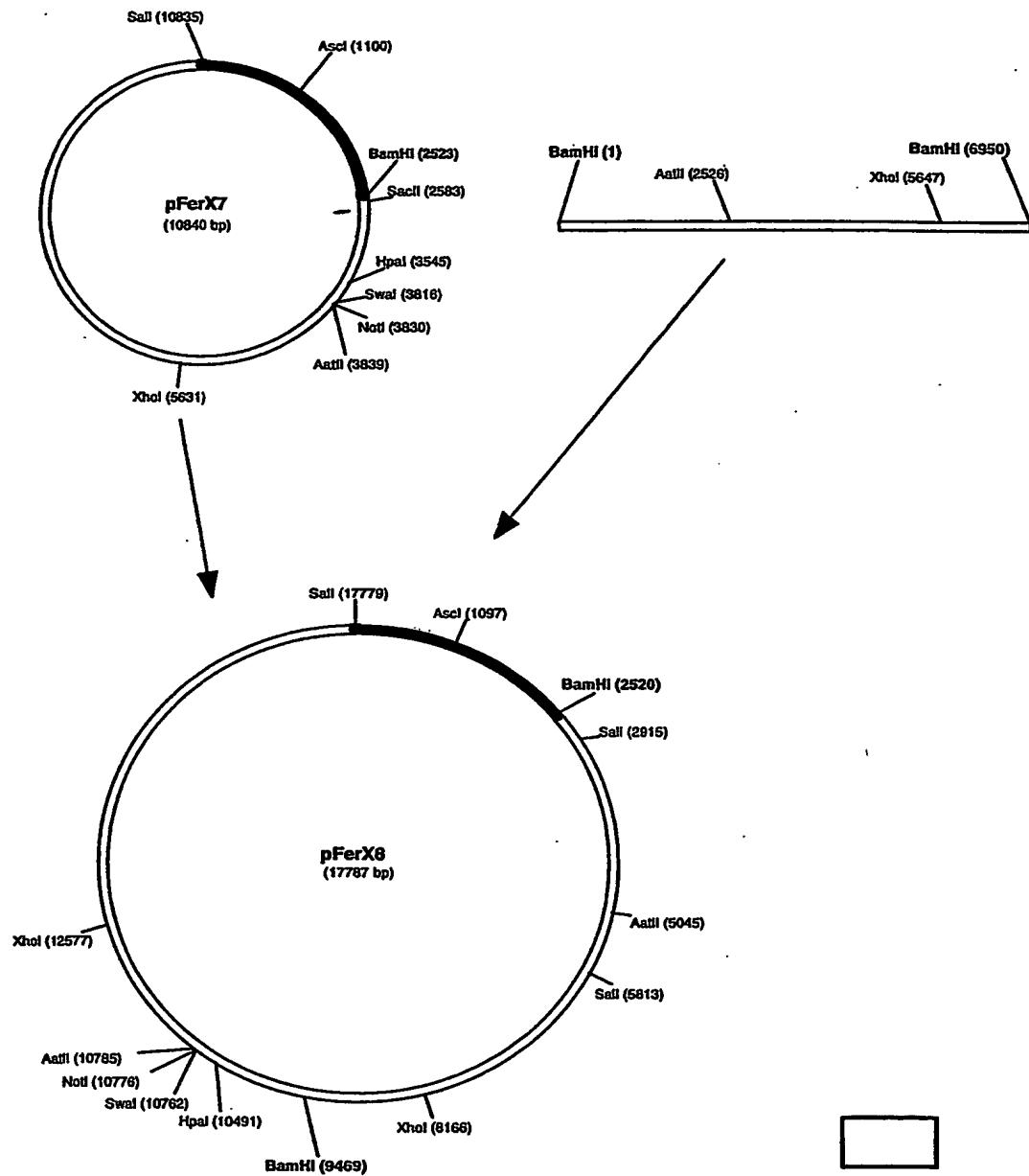
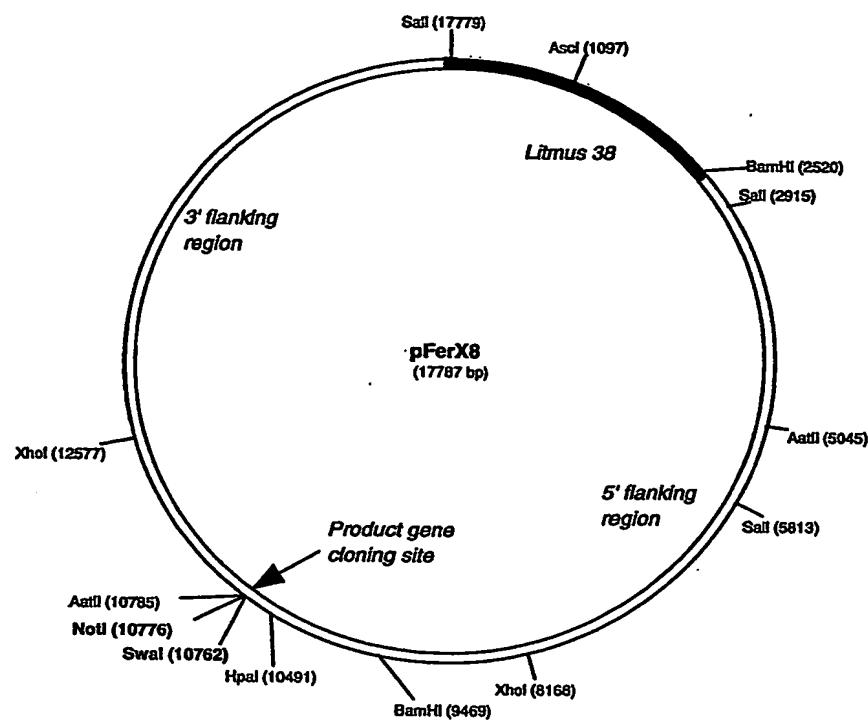


FIGURE 9



**FIGURE 10**

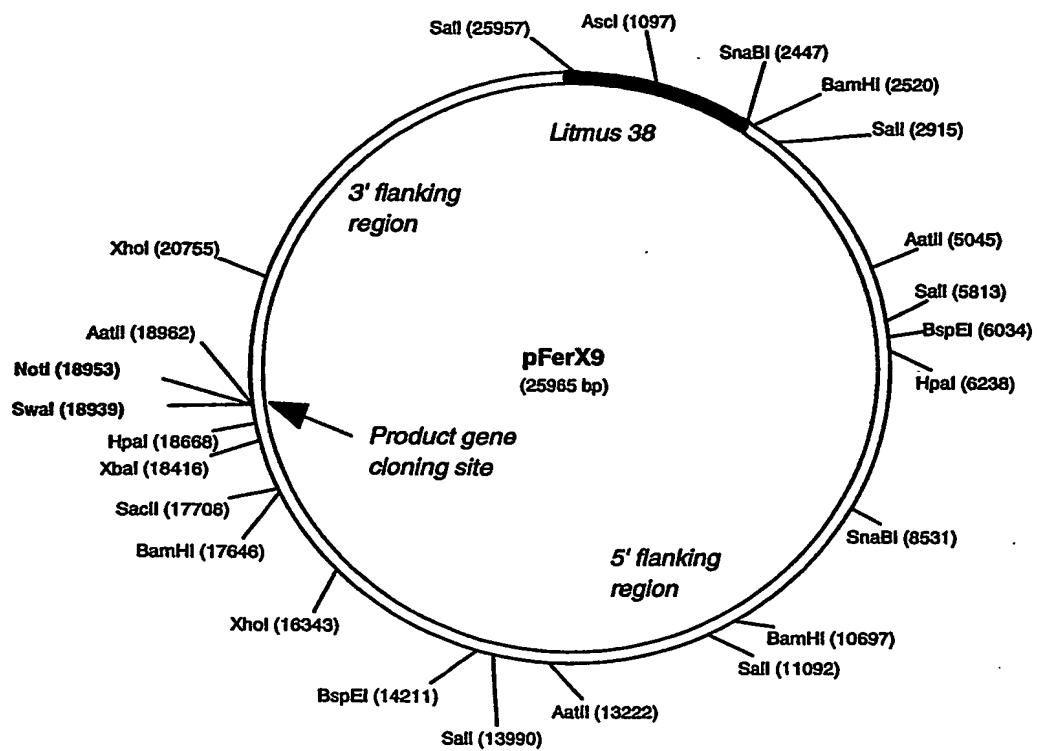


FIGURE 11

**SacII**

**BamHI (9469)**  
**GGATCCCGCTATAAAGTGC**GGCCCGCTGGTCCCTACGCCAGACGTTCTCGCCCAGAGTCGCCGGTACCGGTGCTCG  
ACCCCTCCGACCCCCGTCGGCCGCTTGAGCCTGAGCCCTTGCAACTCGCTCCGCCGCTCCAGCGTCGCC  
CGCGCCTCGCCCAGCCGCCATC ATG gtgagtgcggcctggccttggcgggggggaaagagggtgcggcctggcct  
► Met

cccttggccacttggtagctggcgagggtgggtggggcgtggcctgtgcgggcttccccgcctccagcgccc  
ttctggaaaatggagttgtccggggttcttccaaaggcaggcagccctgcgtggcaagtctgagcacctagcgt  
ttgtggctctgcataagaccaggcacgtcataacaccgtgtttgaagccttagggctgtacaactgtcagcctctc  
caatcaaccctgcagttaggtcatttcctgcactctcgtcccccccggtcacatggcctgcaggctctgtttg  
ggtgtacatccagctccagttcctctgactatggcggtctgttggcatggtgtggaaatggcagccctgggctg  
gtacaagaggcttatctttgtgaacttactctaaccacttctgaagcagcggcctctacatctctgttacacag  
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actgtacgttttaattttatttgcaccagttgttactaacagaagttagtagtaacataacttgggaaaa  
agccacggttggaaaaaccattatcgtggaaataacactgagtgcctaaaactgaaaatcaaagcttctcc  
caatgtatttgcataaaatacaatgcctcagttcttaaccaggtaatcagcagttggctgttagctgaaaacctt  
gagaccttgcgttaaccattttatttaacatgattgtgaaggagagaattgacctccaatgttagggactt  
agcacccccccttcagacaaatagatggccttggctaaagttttctctgcactaatgtggagccatagaacc  
cttgataaagccaagttccaaagttgtttccatccttactttaaaggccaagtagggtgacaaacagccttacca

**AatII (10785)**

**Swal (10762) NotI (10776)**  
**ccattgcattgccttgcgtggggatcaataacaaataccctttccatttAAATCTGCTAGCGGCCGCTGACGTCCC**  
**CAAGGCCATGTGACTTTACTGGTCAGTGCATGTCAGGCTGCCTTATCTTCTATAAGTTGCACC**

**KpnI (10927)**

**AAAACATCTGCTTAAAGTTCTTAATTGTACCATTCTTCAAAAATAAAGAATTGGTACCCAGCTTTGTTGTGAT**  
**TGAGGATGAGCGCACCAAGCTTCCCTGCGCTATACTAACACACTGCA**

## FIGURE 12

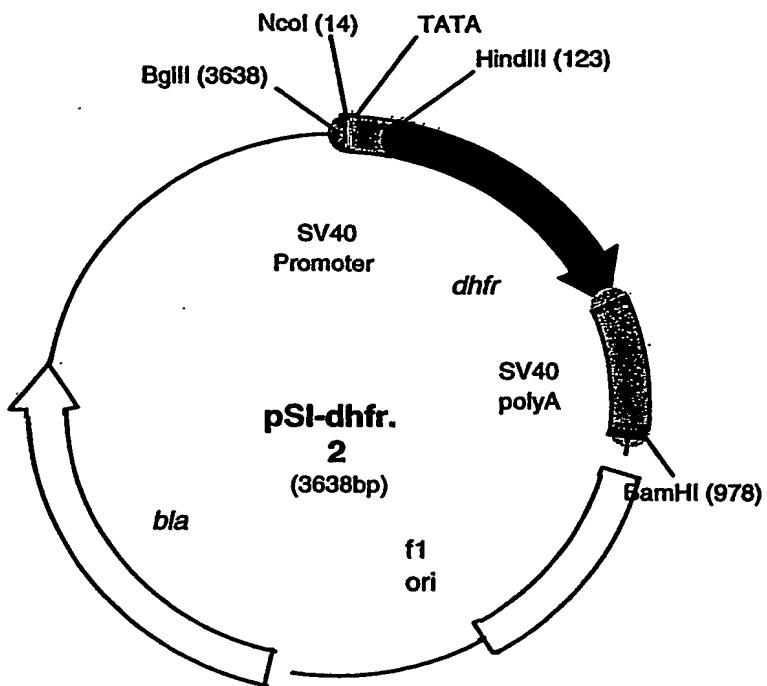
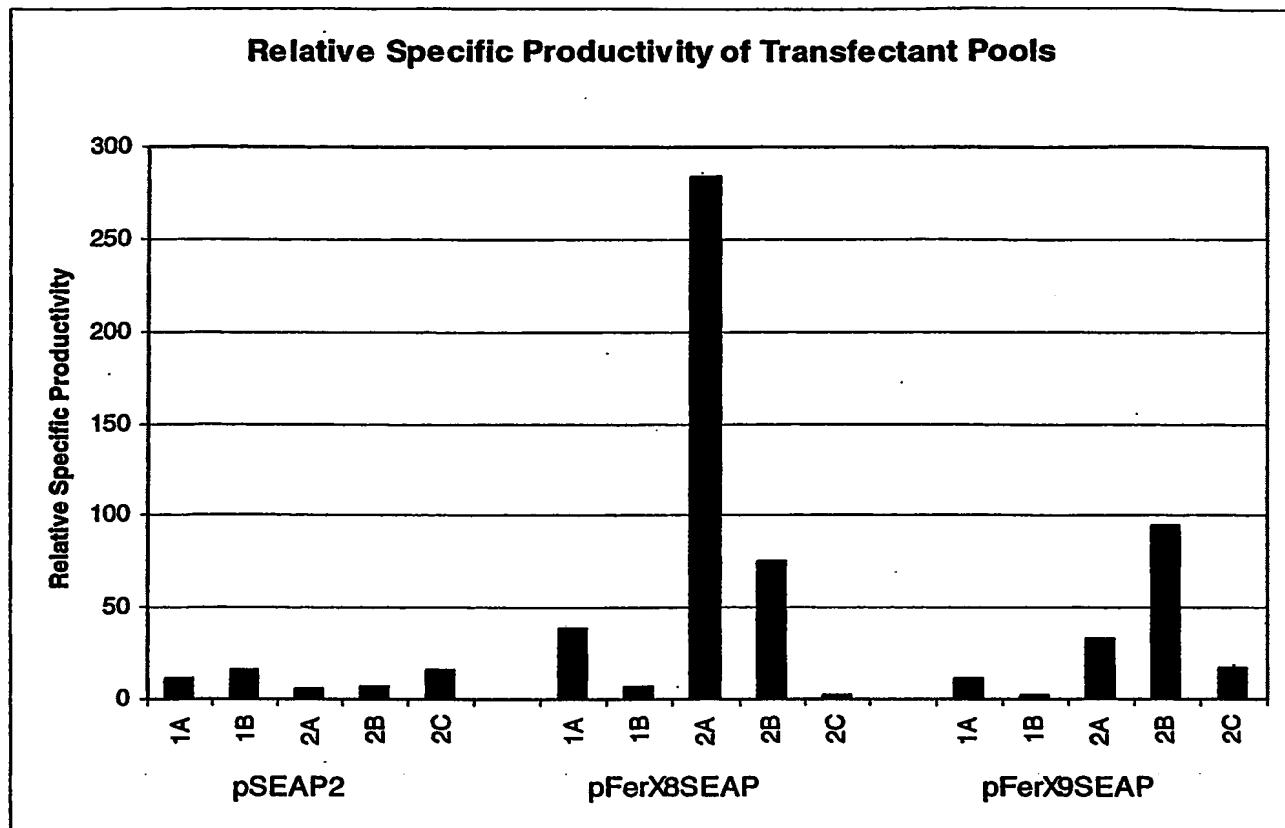


FIGURE 13

**FIGURE 14**

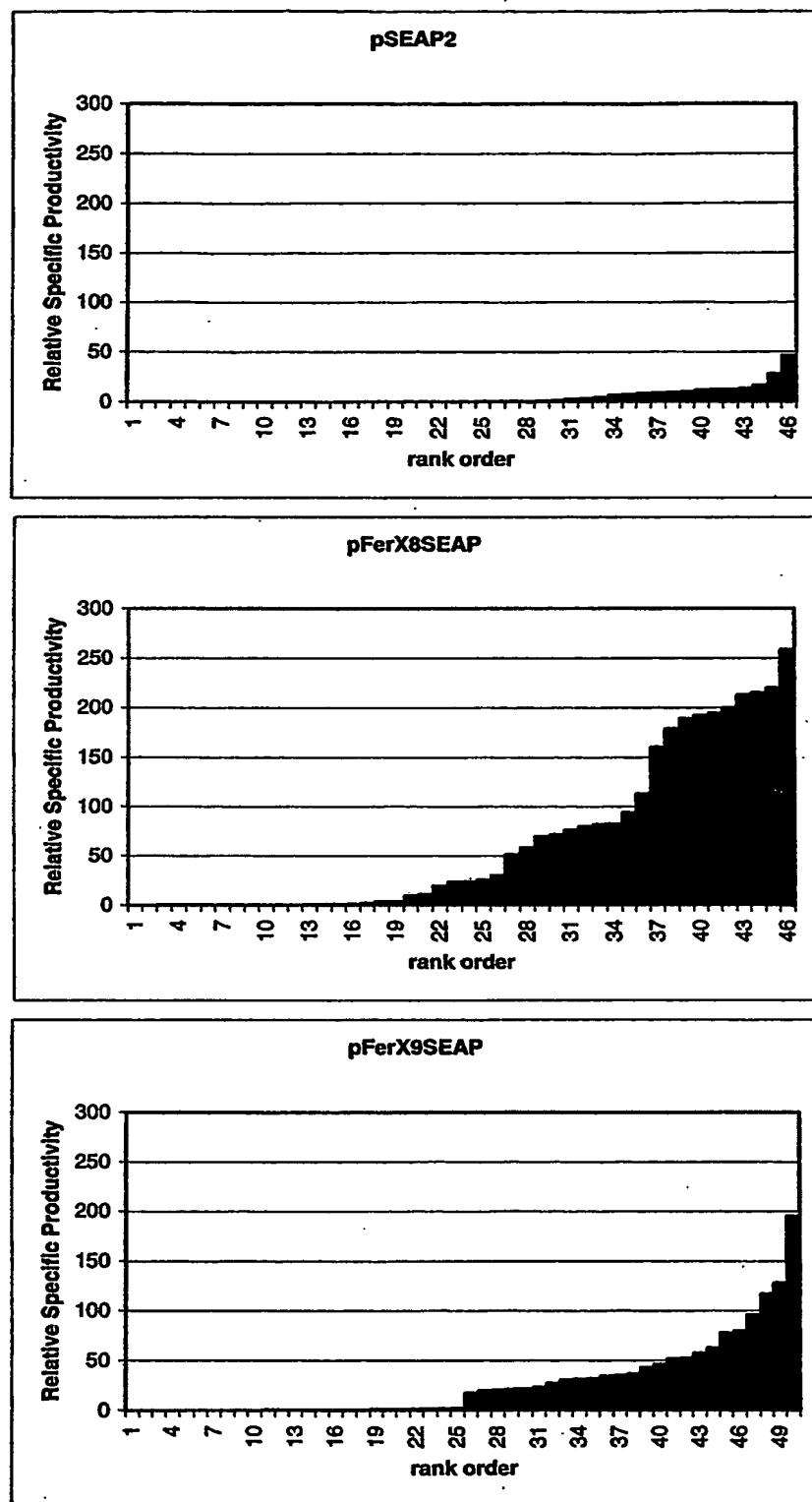


FIGURE 15